

### REMARKS

We have added Fig. 4B to address the Examiner's objections to the drawings and have amended the specification to properly reference the added drawings. Support for Fig. 4B is found at page 24, lines 10-15. We have also amended dependent claims 12 and 13 so as not to depend from a cancelled claim and have added claims 29-34.

### Prior Art Rejections

#### *Independent Claim 1*

The Examiner rejected claims 1, 2, 4, and 17-18 as anticipated by Kim (U.S. 5,514,915). The Examiner also rejected dependent claims 5-8 as unpatentable over Kim.

We submit that Kim neither describes nor suggests a voltage recovery device including an energy storage unit connected in shunt to a distribution line network and configured to transfer real and reactive power between the utility power network and voltage recovery device at a level and for a duration to recover the voltage on the utility power network to within a predetermined proportion of the nominal voltage, following a fault condition detected on the utility power network, as recited in claim 1.

Kim describes a superconducting stabilizing system that includes an isolation switch for providing stored energy to loads and/or to a source of electrical power. Kim's isolation switch operates in one of two modes. In the first mode, :

[t]he isolation switch provides the means for isolating the load(s) from the utility system so that energy can be supplied only to the load(s) to continue operation or to enable the load(s) to "ride thru" the momentary voltage disturbance, thereby assisting the electrical power system in the recovery from the voltage sag or momentary outage by, in effect, shedding the load. (Col. 2, lines 33-39).

\* \* \*

The isolation switch, in effect, sheds the load(s) from the line source during voltage sags or outages. Without the isolation switch, a superconducting energy storage device must not only

support the load(s) but all devices connected to the power system including those which are causing the disturbance. (Col. 3, lines 15-21).

Thus, in this first mode, Kim's system is effectively disconnected from the transmission system. That being the case, in this first mode, Kim's system clearly does not transfer, in response to a fault condition detected on the utility power network, reactive power between the distribution network and voltage recovery device at a level and for a duration sufficient to recover the voltage on the utility power network, much less within a predetermined proportion of the nominal voltage, as required by claim 1.

In the second mode, the isolation switch remains connected (effectively doing nothing) so that energy is supplied to the utility system indiscriminately (i.e., either to the load and/or the source). But, Kim says nothing about controlling his system such that, in response to a fault condition detected on the utility power network, real and reactive power is transferred between the distribution network and voltage recovery device at a level and for a duration to recover the voltage on the utility power network to within a predetermined proportion of the nominal voltage, as required by claim 1.

Applicants' invention, as recited in amended claim 1, is more than simply providing reactive power to the distribution line network as described by Kim. Rather, as discussed at page 7, line 13 to page 8, line 23 of applicants' specification, applicant was the first to recognize that the voltage on the transmission line network could be stabilized by injecting or absorbing reactive power at the distribution network. And, because the voltages on the distribution network are lower than those on the transmission network, the design and installation of a voltage recovery device for the distribution network is simpler and easier and reliability of the voltage recovery device is also higher.

We submit that because claims 2, 4-8, 17, and 18 depend from independent claim 1, these dependent claims are patentable over Kim for at least the same reason that claim 1 is patentable.

*Independent Claim 9*

The Examiner rejected claims 9, 11, 14 and 19-20 as anticipated by Kim. The Examiner also rejected dependent claims 12, 13 as unpatentable over Kim.

We submit that Kim neither describes nor suggests a method of stabilizing a utility power network including operating, in response to detecting the fault condition, the voltage recovery device to transfer real power and reactive power to a distribution line network at a level and for a duration to recover the voltage on the utility power network to within a predetermined proportion of the nominal voltage, as recited in amended claim 9. As discussed above, Kim describes a system that is operated in two modes. In the first mode, Kim's system simply disconnects the load on the distribution line network from the transmission line network. In the second mode, Kim supplies energy indiscriminately to the utility system, but says nothing about operating his system such that, in response to a fault condition detected on the utility power network, real and reactive power is transferred between the distribution network and voltage recovery device at a level and for a duration to recover the voltage on the utility power network to within a predetermined proportion of the nominal voltage, as required by claim 9.

We submit that because claims 11-14 and 19-20 depend from independent claim 9, these dependent claims are patentable over Kim for at least the same reasons that claim 9 is patentable.

*Independent Claims 23 and 24*

The Examiner rejected claims 23 and 24 as unpatentable over Kim. The Examiner argues that it is well known to provide multiple voltage/power/energy recovery devices through out an entire utility power network and so it would have been obvious to couple a plurality of Kim's systems to a utility power network. We submit that the inventions recited in claims 23 and 24 are more than simply coupling multiple voltage recovery devices in shunt to at least one distribution line network. Rather, as discussed at page 13, lines 4-19 and page 24, line 10-23 of applicants' specification, applicant was the first to recognize that a plurality of voltage recovery devices could be configured and operated together in a manner that the aggregate contribution

Applicant : Paul Frederick Koeppel et al.  
Serial No. : 09/449,435  
Filed : November 24, 1999  
Page : 14 of 14

Attorney's Docket No.: 05770-092001 / AMSC-440

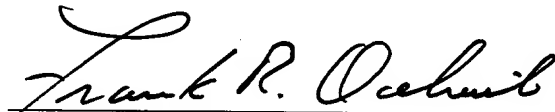
toward stabilizing the utility power network is better than the sum of each of the voltage recovery devices when configured and operated independent from one another.

We submit that because claims 25-28 depend from independent claim 24, these dependent claims are patentable over Kim for at least the same reason that claim 24 is patentable.

Enclosed is a check for \$18.00 for the excess claim fee for one extra dependent claim. Also enclosed is a Petition for Extension of Three Months of Time with the require fee of \$950.00. Please apply any other charges or credits to deposit account 06-1050.

Respectfully submitted,

Date: December 22, 2003



Frank R. Occhiuti  
Reg. No. 35,306

Fish & Richardson P.C.  
225 Franklin Street  
Boston, MA 02110-2804  
Telephone: (617) 542-5070  
Facsimile: (617) 542-8906